NJWEA - Winter Tech Transfer 2026 Cleaning and Inspection

A Programmatic Approach to Sewer Screening

NJWEA WINTER TECHNOLOGY TRANSFER SEMINAR 2026

Chris Skehan
IDEX Intelligent Water

1

Condition Assessment

www.adsenv.com/flowsight

How Close are we to the next "Catastrophic Failure" (210 miles)

EPA estimates **23,000 to 75,000** SSOs annually.
It is estimated a substantial number are caused by infrastructure failure.

Estimated **240,000** sewer failures a year.
Comparing age of infrastructure to sewer failure frequency suggests a possible correlation.

Infrastructure is **45 years old** on average in the USA.
Aging infrastructure has a significant impact on failure.

2025 **American Society of Civil Engineers Infrastructure Report Card**

Year	1988	1998	2001	2005	2009	2013	2017	2021	2025
Wastewater Grade	C	D+	D	D-	D-	D	D+	D+	D+

"Utilities should use continuous, data-driven asset management to extend infrastructure life and focus limited funds where they matter most…"

2

Condition Assessment

www.adsenv.com/flowsight

What is Condition Assessment?
Systematic inspection of a Collection System to identify current state to maintain optimal performance and prioritize maintenance and rehabilitation efforts.

Why do we do it?
- Avoid catastrophic failures
- Extends lifespan of infrastructure
- Optimizes resource allocation
- Improves environmental impact

Various Technologies
- CCTV
- Laser Profiling
- Sonar Screening
- Smoke Testing
- Dye Testing
- Manhole Inspections
- Acoustic Testing
- Flow Monitoring

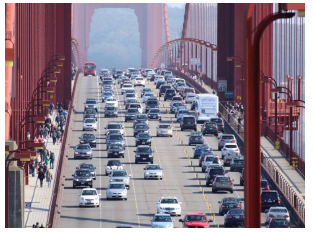
Large diameter pipes can be the most difficult to deploy these technologies where failure can present the most critical impact

3

LET'S FOCUS ON THE BIG STUFF

www.adsenv.com/flowsight

Large Diameter Sewers
- Trunk and Interceptors +15"
- 1% - 7% of the total network
- Large user base



Why are they important?
- High Consequence of Failure
- Biggest Impact to Service

4

NJWEA - Winter Tech Transfer 2026 Cleaning and Inspection

Large Pipe … Large Problems

Hard Access
- Legacy construction in lowest lying points creeks & rivers
- Buried over time with airports, bridges, and railroads

Operationally Active
- Difficult to isolate without disruption

Barriers to inspect regularly
- Don't have the tools and resources
- Budget for advanced inspection technology

5

Screening Level Assessments (SLA)

ADS subterra www.adsenv.com/flowsight

Assets should be prioritized based on criticality. Interceptor sewers are critical and require more monitoring and attention than others.

Screening Level Assessments provide rapid detection of grade 4 and 5 defects (the major issues) on critical high impact infrastructure.

Now – Needs to be addressed immediately

Soon – Begin planning (Timeline, funding, tools needed)

Later – Observe and Screen

6

Programmatic Approach

ADS subterra www.adsenv.com/flowsight

Annual health checkups for your most critical sewers

7

What Makes **Screening Level Assessments** Possible?

ADS subterra www.adsenv.com/flowsight

8

NJWEA - Winter Tech Transfer 2026 Cleaning and Inspection

How it Works!

ADS | subterra
www.adsenv.com/flowsight

How Screening Works

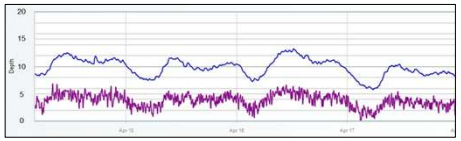
1	2	3	4	5
Inspect and Test	**Deploy and Collect**	**Convert and Process**	**Screen and Compare**	**Report and Build**
Review Existing GIS and System Information	ADS captures the data using the Scout Technology	Data converted into georeferenced information	Condition criteria tagged, located, & compared	Initial condition report followed by change logs

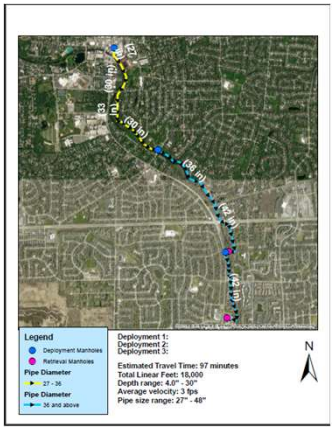
9

Inspect and Test Phase

Pre-Inspection is Key

- Review of Sites
- Site Access
- GIS Review
- Velocity Data Review
- Depth Data Review





10

Deploy and Collect

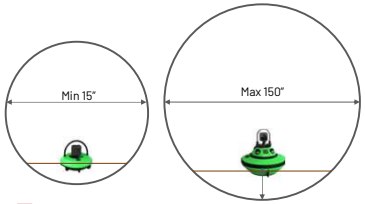
ADS | subterra
www.adsenv.com/flowsight

Screening uses "Scouts"

Run Time
55 Minutes (standard)
3 Hours (option)

Lightweight
7-9 lbs. (4 kg)

Dimensions
7-16" diameter
9-14" height



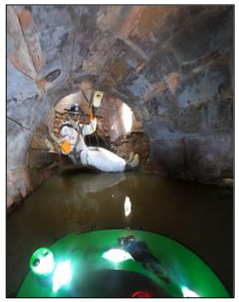
Optimal Performance in…
- Gravity-fed sanitary sewers 15"–150" in diameter
- Flows 1-6 fps

Plan and accommodate for…
- Drop connections/waterfalls

11

Deploy and Collect

ADS | subterra
www.adsenv.com/flowsight



12

NJWEA - Winter Tech Transfer 2026 Cleaning and Inspection

Deploy and Collect

LINK

ADS | subterra
www.adsenv.com/flowsight

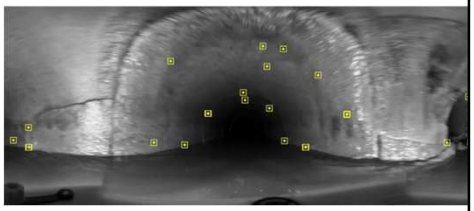
13

Screen and Compare

ADS | subterra
www.adsenv.com/flowsight

AI-Powered Fast Processing

Using our Cloud platform, computer vision and AI, enables FlowSIGHT to automate processes and reduce or eliminate many manual tasks.



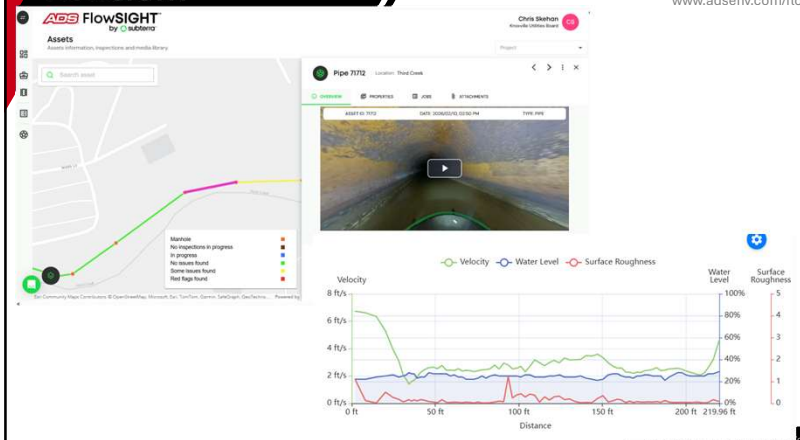
Type	Distance	Remarks
Major I&I	84.75 ft	Gusher

Video ref.
10

14

FlowSIGHT™ : GIS &Flow Profile

ADS | subterra
www.adsenv.com/flowsight



15

subterra™
A business unit of IDEX Corporation Company | IDEX | Water Intelligence
TECHNICAL BRIEF

DETECTING HYDRAULIC JUMPS IN LIVE SEWERS

What the hydraulic performance screening (flow profile) reveals, why PACP can't code it, and what it means for CMOM capacity management

LIVE CAPTURE: HYDRAULIC JUMP EVENT

WHAT IS THIS?

A hydraulic jump — flow transitions from supercritical (Fr > 1) to subcritical (Fr < 1). Excess kinetic energy dissipates as turbulence. The video captures the float passing through the jump; the graph quantifies the regime change at that exact location.

WHY DOES IT MATTER?

Every hydraulic jump is energy that should be moving wastewater, but is lost to turbulence. A jump can also signal that the pipe's gradient or geometry has deviated from design.

Worse, the violent surface disruption strips dissolved H_2S into the head-space, initiating crown corrosion downstream. One hydraulic jump creates three compounding problems: energy loss, capacity loss, and an active corrosion zone hundreds of feet away and where CCTV would code the damage without ever identifying the upstream cause.

CMOM CAPACITY CONNECTION

CMOM requires utilities to evaluate capacity, identify hydraulic limitations, and shift from reactive to preventive maintenance. A hydraulic jump is a direct, measurable indicator that the pipe's hydraulic performance has deviated from its design envelope. It is exactly the "early warning sign" the CMOM framework asks utilities to detect — and until now, they have had no mechanism to find it in large gravity sewers.

THE PACP BLIND SPOT

PACP has no defect code for a hydraulic jump. No code for "flow regime transition," no code for "energy dissipation event." Even if a CCTV crawler or float physically traversed this location, the unit itself occupies cross-sectional area and alters the flow regime — the jump may shift, change intensity, or

VELOCITY (green line) SURFACE ROUGHNESS (red line) WATER LEVEL (blue line)

16

NJWEA - Winter Tech Transfer 2026 Cleaning and Inspection

Report and Build

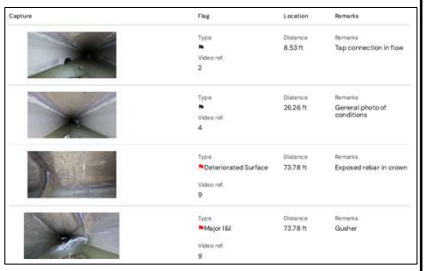
ADS | subterra
www.adsenv.com/flowsight

Output: Red Flag Report (.pdf)

Output: Video Data (.mp4)
Segmented and Georeferenced

Output: Microsoft Exchange Database File (.mdb)
- Available for importing into Asset Management Software
- VLC Media Player (view 360 video and orient as needed)

Output: Change Logs
- Change logs are created and archived for consecutive, ongoing FlowSIGHT deployments



17

18

FlowSIGHT™ : Case Studies

ADS | subterra
www.adsenv.com/flowsight

Duckett Ck Sanitary District

Project Name: **Confirmation Screening**

Location: **O'Fallon, MO**

Miles of Pipe:	Pipe Size:	Project Duration:
1 Mile	24"	2 Hours

Objective:
Needed to validate their assumption that the sewer needed to be lined and to decide on a multi-million dollar lining RFP

Project Highlights:
- Access to the sewer was sensitive and difficult going through a community and farmland
- Conventional methods were not suited to the topography
- Challenging flow conditions

Result
Condition was confirmed defective, and the decision was made to put out a multi-million dollar lining job.

19

20

NJWEA - Winter Tech Transfer 2026 Cleaning and Inspection

FlowSIGHT™ : Case Studies

ADS | subterra™
www.adsenv.com/flowsight

Clarksville, TN

Project Name: **Clarksville, TN**

Location: **Clarksville, TN**

Miles of Pipe:	Pipe Size:	Project Duration:
2.0 Miles	24" – 36"	0.5 days

Objective:

Client had a failure in a similar fiberglass pipe and needed to confirm integrity of 2 mile of critical pipe

Project Highlights:

- Because of the remote nature of the line, traditional inspection methodology could not be deployed.
- The versatility of the SewerScout allowed it to be transported to the location where it inspected 2 miles of fiberglass pipe.
- The entire deployment was completed in 2 hours.
- Good Bill of health – one small hole

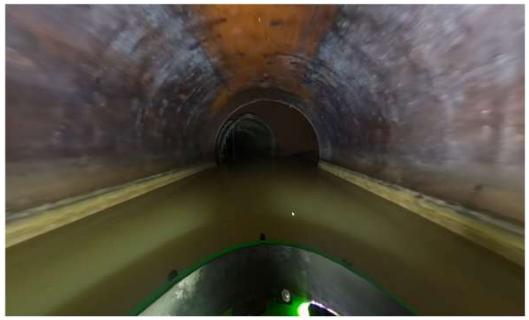
Result

Integrity for the 2 miles of pipe was confirmed onsite to be in a good state. Follow up report was delivered. One Defect Found

21

22

Bonus Video – Failed Liner



23

Conclusions & Takeaways

ADS | subterra™
www.adsenv.com/flowsight

- Sewer Screening technology is (1) fast and (2) cost effective
  - Can be rapidly adopted and deployed
- Screening is not a replacement for traditional diagnostic technologies
  - Think of it as a supplement that helps us prioritize these technologies
- Screening large diameter piping more routinely can:
  - Provide a data input to help prioritize or de-prioritize assets (Now, Soon, Later)
  - Help pinpoint the use of more expensive diagnostic technologies
  - Lead to better decision making and funding decisions
  - Have "Peace of Mind" that your utility won't make National Headlines

24

25